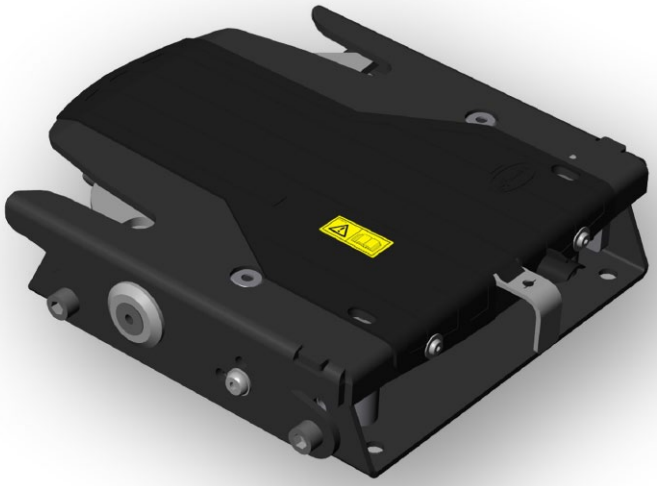
OWNER'S MANUAL

US

# Permolock C3

Docking system for Power wheelchair in vehicle



permobil

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# *Permolock C3*

Docking system for electric wheelchair in vehicle

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## Important information about the user manual

Congratulations on choosing Permolock C3. Our aim is for you to feel satisfied with your choice of supplier and product.

Before you start using your Permolock C3, it is important to read and understand this user manual and in particular the section on safety.

The user manual is primarily designed to inform you about the Permolock C3, its functions and capabilities, and to advise you on the best way of using it. It also contains important safety information and describes some of the problems which might arise in use.

Always keep the user manual in your vehicle, as you may need to consult its important information on use, safety and maintenance.

You can also find information on our products on our website. You will find us at www.permobil.com.

All the information and the pictures, illustrations and specifications are based upon the product information that was available at the point in time this user manual was printed.

Pictures and illustrations that appear in the user manual are typical examples and are not intended to be exact depictions of different parts of the product.

We reserve the right to make changes to the product without prior notification.

## TECHNICAL SUPPORT

In the event of technical problems, you should contact your dealer or Permobil Inc USA at 1-800-736-0925.

Always state the chassis serial number when contacting Permobil to ensure that the correct information is provided.

## SPARE PARTS & ACCESSORIES

Spare parts and accessories must be ordered through your dealer.

## WARRANTY & SERVICE

Permolock C3 is supplied with a 12-month warranty.

Service can be carried out in our own workshops or at authorized workshops.

You should only carry out servicing and maintenance designated by the user manual as suitable for being carried out by the user. All other servicing and maintenance must be carried out by persons with sufficient knowledge to give a competent result.

Contact Permobil Inc for further information.

## PRODUCT APPROVAL

This product fulfills the requirements of ISO 10542-1 and ISO 10542-3

## Safety instructions - General

Permolock C3 is a docking system for fixing Permobil electric wheelchairs in place and is designed for use in vehicles.

It is important to read and follow the instructions and safety guidelines given in this user manual before starting to use your Permolock C3, as mistakes in use could lead to risk of injury to the user or passengers, or damage to the wheelchair, the Permolock C3 or the vehicle.

Any unauthorized alterations to Permolock C3 could lead to increased risk of accident. Follow closely the recommendations in the section on Operation, in order to avoid risk of accident during use.

**Warning labels**
You will see the following “warning labels” in the user manual. They are intended to draw attention to situations which could lead to problems, near-accidents, personal injury or damage to the wheelchair, etc.

**⚠ CAUTION!**

Take care here.

**⚠ WARNING!**

Take extra care here.
Risk of personal injury or damage to the wheelchair and its surroundings.

**⚠ CAUTION!**

**Permobil INC accepts no liability for personal injury or damage to property which may arise from the failure of the user or other persons to follow the recommendations, warnings and instructions given in this user manual.**

# Safety instructions

**⚠ WARNING!**

**To be checked before first use**
Before using your wheelchair with Permolock C3, you must check that the chair has been suitably adjusted. Contact your supplier for information.

**To be checked before setting off**
Check that the light on the control button in the vehicle is green after locking has been activated.

**Fitting**
Permolock C3 should be fitted by a competent service engineer or a person with adequate knowledge to perform the adjustment in an expert manner.

**Maintenance and service**
Carry out only the service and maintenance activities indicated in this user manual. All other servicing, alterations and changes to the vital systems of Permolock C3 and its accessories must be carried out by a competent service engineer or a person with adequate knowledge to perform the adjustment in an expert manner. In case of doubt, always contact a competent service engineer or Permobil.

Use only spare parts or accessories approved or recommended by Permobil. All other use could lead to changes which might impair the function and safety of the docking system. It could also lead to the warranty for your Permolock C3 becoming invalid.

**⚠ WARNING!**

**Recycling of electronic items**
Obsolete electronics should be disposed of responsibly in accordance with local recycling regulations.

**EMC requirements**
The electronics in the vehicle locking system may be affected by external electromagnetic fields. Likewise the electronics in the locking system themselves may emit electromagnetic fields which could affect the surrounding area.

The threshold values for Electro-Magnetic Compatibility (EMC) relating to electric wheelchairs and their accessories are laid down in harmonized standards under EC Directive 93/42/EEC Medical Devices.

Permolock C3 meets these threshold values.

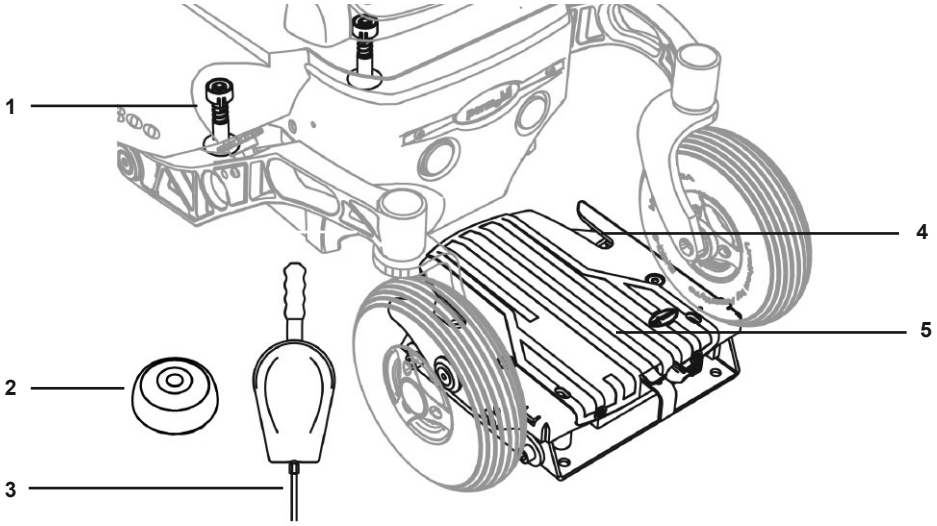
# Design & function

Permolock C3 is designed for use together with Permobil's electric wheelchairs approved for this purpose. Permolock C3 consists of two interacting units: Two pins are fitted to the underside of the wheelchair chassis, along with a locking plate fitted to the vehicle. During use, the locking plate's locking mechanisms mechanically hook around the pins on the wheelchair, locking it securely in place.

If the chassis in its original form does not have the pins, they must be fitted. The chassis may also need to be supplemented with reinforcement plates so that the wheelchair can be used together with the lock. (See the section Fitting.)

Permolock C3 is designed so that the user can either drive or reverse into the lock if they are using a suitably adapted wheelchair. If the user is to sit in the wheelchair during transport, the lock must be fitted in or against the direction of movement in the driver or passenger space.

Permolock C3 can also be used as a transport lock, i.e. to transport the wheelchair without the user. When Permolock C3 is used as a transport lock, the user should park the wheelchair and lock it securely using the C3. The user then transfers to the driver's ordinary driver or passenger seat. In such cases, the lock can also be fitted laterally in the vehicle.




**1.** Pin
**2.** Control button
**3.** Release lever
**4.** Locking mechanism
**5.** Locking plate

# Operation

## General

Permolock C3 is designed to ensure that, in the event of a collision or other sudden movements of the vehicle, the wheelchair does not break free and cause personal injury or material damage.

Permolock C3 must only be used together with Permobil electric wheelchairs approved for this purpose and with the chair base available as an accessory.

It may be necessary to have your wheelchair adjusted to work with Permolock C3. A test docking must always be performed in the presence of the person fitting the docking system.

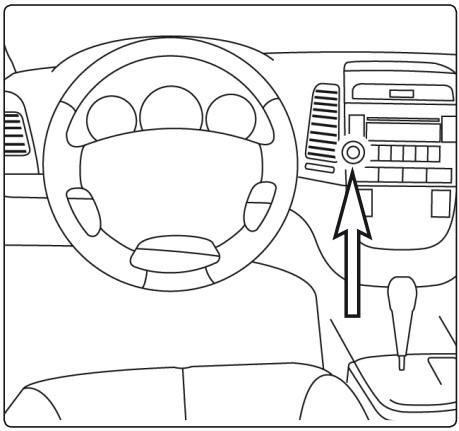
# Operation

## General

Permolock C3 consists of two interacting units: Two pins are fitted to the underside of the wheelchair chassis, along with a locking plate fitted to the vehicle.

A control button is fitted in the vehicle. This button is available in two designs, standard and advanced. The location of the control button can vary, depending on the vehicle and the user's needs. The picture shows an example of the usual location of a standard button.

The control button gives various sound and light signals depending on the status of the docking system. (See pages 17-19).

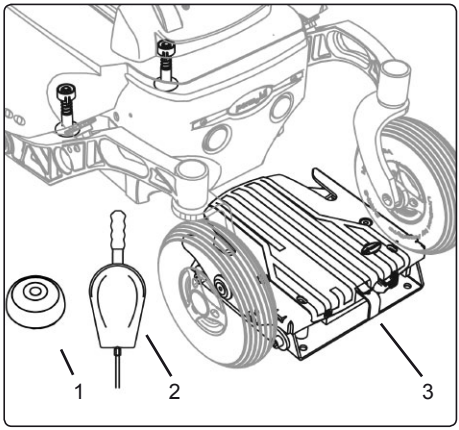


*Example of position of control button in the vehicle.*

*Control button, advanced design.*

The docking system can be controlled in three ways:

- via the control button located inside the vehicle (1).
- via a manual release lever fitted inside the vehicle next to the seat (2).
- via a manual emergency control on the front of the lock (3).




*Controlling Permolock C3.*

# Operation

## Docking the wheelchair

The wheelchair is locked in place by moving the chair in towards the locking mechanisms, which then hook securely to the two pins.

**⚠ WARNING!**

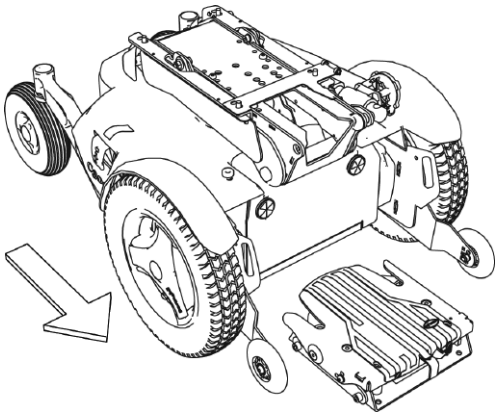
Be careful of the feet when moving the wheelchair into the docking system. Risk of personal injury.

Check that the light on the control button is green after docking has been activated.

If the user is to sit in the wheelchair during transport, always secure the feet fully to the foot plates before commencing your journey. This reduces the risk of personal injury in the event of a collision.

If the ignition is turned on before the wheelchair is locked in position using Permolock C3, the lock plate's control button will shine orange and a five-second sound signal will be emitted. This is a safety function to remind the user that the wheelchair must always be locked in position before the vehicle is started.

1. Run the wheelchair straight over the docking system so that the two pins on the wheelchair engage in the locking mechanism and mechanical stop. If this takes longer than 15 seconds, the control button will indicate that there is a problem. The system will then need to be reset, see pages 18-19.
2. Turn on the vehicle's ignition. The control button shines green, which indicates that the wheelchair is correctly secured in position.



*Run the wheelchair in over Permolock C3.*

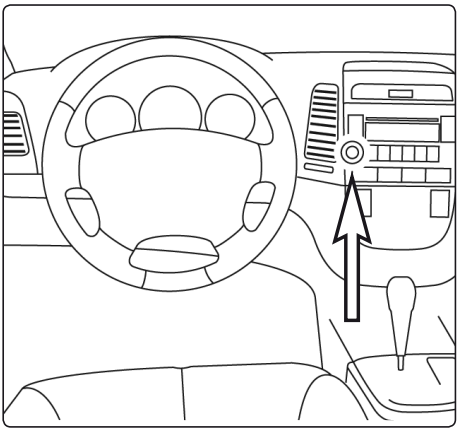
# Operation

## Releasing the wheelchair

The wheelchair is released electronically and activated using the control button.

**1.** In order to open the locking mechanism of the docking system, press the control button until it changes to red. This indicates that the locking mechanism has been opened and that the wheelchair can be moved out of the docking system.

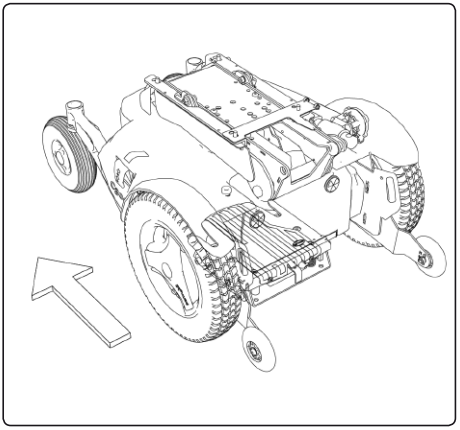
If the vehicle's ignition is still switched on, a WARNING! signal will also be emitted.



*Example of position of control button in the vehicle.*

**2.** When the wheelchair is moved out of the docking system, the control button's light will continue to shine red.

After 15 seconds, the docking system will return to its original position and is then ready for relocking. If the vehicle's ignition is still switched on, the light on the control button will change to orange.

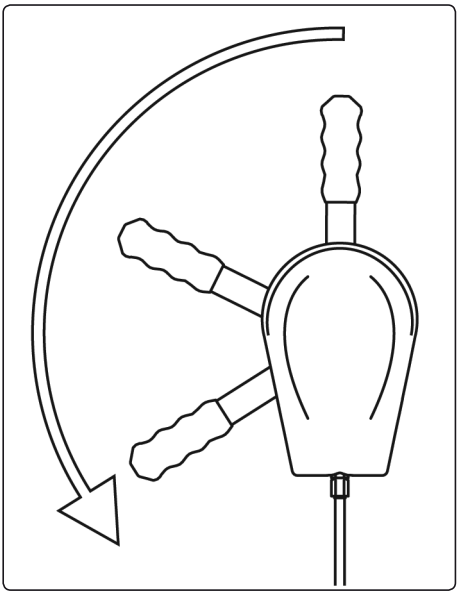


*Moving the wheelchair out of Permolock C3.*

# Operation

## Manual release of wheelchair

If the vehicle battery is flat, it will still be possible to release the wheelchair manually. This is done using the release lever available as an accessory to the docking system. The location of the manual release control in the vehicle varies, depending on the type of vehicle and the user's requirements.



*Lever for manual release.*

**⚠ CAUTION!**

In the event of manual release on a steep upwards gradient, the wheelchair may simultaneously be carefully "driven" into the docking system to facilitate release.

**1.** To open the locking mechanism manually, move the lever to its open position (see picture).

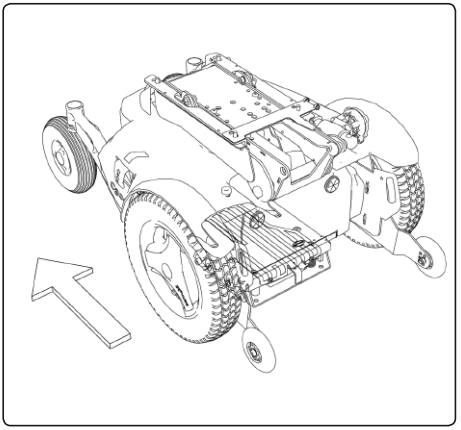
The locking mechanism is opened so that the wheelchair can be moved out of the docking system.

**⚠ CAUTION!**

Always reset the locking mechanism to the locked position after moving the wheelchair out of the docking system.

**2.** When the wheelchair is moved out of the docking system, the locking mechanism is reset to the locked position by moving the release control to the locked position.

The docking system is then ready to be used again.



*Moving the wheelchair out of Permolock C3.*

# Operation

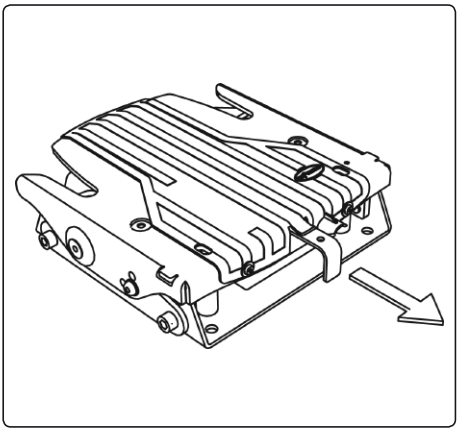
## Emergency release of the wheelchair

In an emergency, the locking mechanism can be opened manually using the emergency handle on the front edge of the locking plate.

**⚠ CAUTION!**

The user will need assistance in operating the manual emergency locking control.

1. Pull the control for emergency unlocking directly forward forcefully (see picture) until the locking mechanism opens and the wheelchair is released.
2. Hold the control in the extended position while the wheelchair is moved out of the docking system.



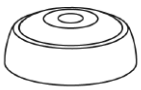
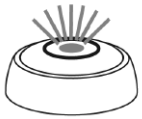
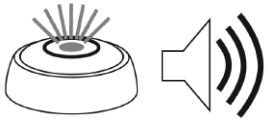
*The control for emergency unlocking is pulled directly forward.*

# Operation

## Overview, control button

The following pages explain the different indications the control button may display when using Permolock C3. There are also suggestions for possible causes and action. (see the section Troubleshooting as well.)

## Before docking

| INDICATION | POSSIBLE CAUSE | ACTION |
|---|---|---|
| No indication  | The ignition is not switched on. | No action.<br>If required, the wheelchair is released as normal by pressing the control button. |
| The light is orange  | The ignition is on, but there is no wheelchair in the docking system. The docking system is ready for use. This indication is a safety function to remind the user that the wheelchair must always be locked in position before the vehicle is started. | No action. The docking system is ready for use. |
| The light is shining orange and a five-second long sound signal is heard.  | The ignition is being switched on, but there is no wheelchair in the docking system. The docking system is ready for use. This indication is a safety function to remind the user that the wheelchair must always be locked in position before the vehicle is started. | No action. The docking system is ready for use. |

# Operation

## When docking

| INDICATION | POSSIBLE CAUSE | ACTION |
|---|---|---|
| The light is shining green | The ignition is on. The wheelchair is correctly secured. Once the ignition has been turned off, the light will shine green for a further 15 seconds. | No action. |
| The light flashes red and a five-second long audio signal is heard. | The ignition is on. The wheelchair is not docked correctly. | Reset the system by pressing the control button for ten seconds.<br>Move the wheelchair out of the docking system and try again. |

# Operation

## When docking

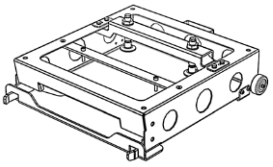
| INDICATION | POSSIBLE CAUSE | ACTION |
|---|---|---|
| The light is shining red | The ignition is not on. The locking mechanism is closing. | If the light does not change to green, reset the system by pressing the control button for ten seconds. Move the wheelchair out of the docking system and try again. |
| | The manual release lever is not in the locked position. | Make sure the release lever is in the locked position and that the wheelchair is fully in or out of the docking system. |
| The light is shining red and a five-second long audio signal is heard. | The lock has opened while the ignition is on. This indication is a safety function to remind the user that the wheelchair must always be locked during transport. | Reset the system by pressing the control button for ten seconds.<br>Move the wheelchair out of the docking system and try again. |

# Accessories

## Chair base

Permits use of original car seat in Permolock C3.

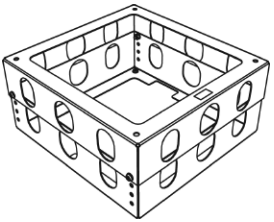
Art. no: 1824275



## Adjustable Chair base

Permits use of original car seat in Permolock C3.

Art. no: *1821551*



## Manual release handle

Makes it possible to release the wheelchair manually if, for instance, the vehicle's electrical system does not function as it should.

Art. no: 102841-99-0

## Quick release for Manual handle

Used for rapid and simple fitting/removal of the release lever.

Art. no: 102859-99-0

## Control button, advanced design.

Art. no: 1824735

## Extension cable

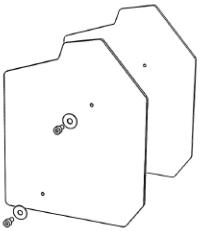
Used, when required, to extend the cabling for Permolock C3.

Art. no: 1823604

# Accessories

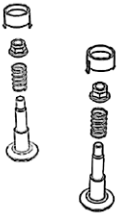
## Reinforcement plates C350

Art. no: 104637-99-0



## Locking pins C300, K300, C350

Art.no.: 104626-99-0

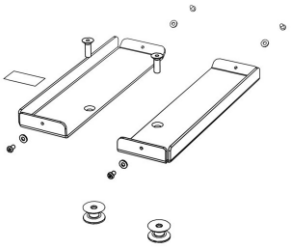


## Locking pins K450

Art.no.: 1824325

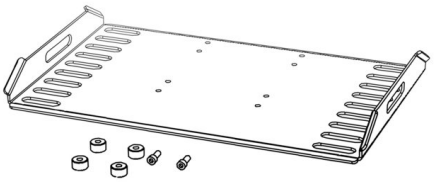
## Locking pins incl. reinforcement plates X850

Art.no.: 1825146



## Adapter plate X850

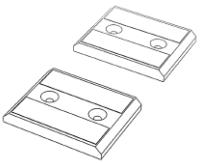
Art.nr: 1825280



## Floor spacers

When fitting Permolock C3 to a slanted surface, it may be necessary to use spacers on the vehicle floor in order to make it easer to move the wheelchair in and out.

Art. no: 104707-99-0



# Maintenance

## Cleaning

The following is general advice recommended by Permobil. For severe soiling or damage to surface finish, contact Permobil for information.

For normal cleaning proceed carefully with a soft cloth/sponge, hot water and a mild detergent.

**⚠ WARNING!**

Never hose the docking mechanism down as the electronics may be damaged.

# Technical specifications

## DATA

| | | |
|---|---|---|
| **General** | | |
| Name | Permolock C3 | |
| **Dimensions and weight** | | |
| Length | 12” | ( 310 mm.) |
| Width | 11” | (280 mm) |
| Height | 3”-4” | (72-97 mm.) |
| Weight | 22 Pounds. | (10 Kg) |
| **Electrical system** | | |
| Voltage | 12V | |

FITTING

# *Permolock C3*

Docking system for electric wheelchair in vehicle

# Fitting

## Fitting a docking system to the vehicle - General

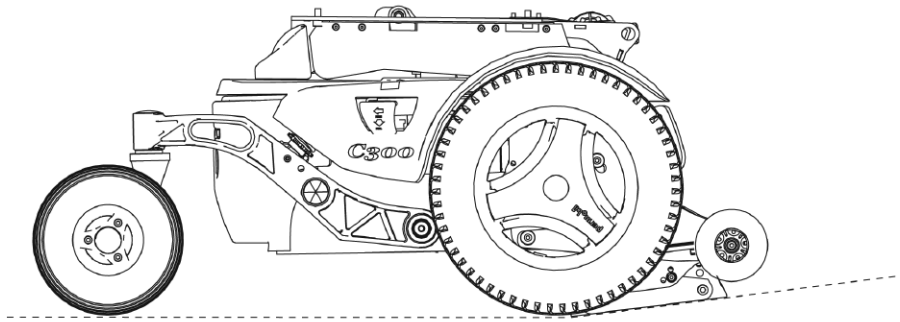
**⚠ CAUTION!**

To ensure that the wheelchair pins end in the correct position for locking, it is important that the locking plate is mounted correctly in relation to the wheelchair chassis. The height of the locking plate can therefore be adjusted to six different height positions. The docking system is sprung to make moving in and locking on a sloping surface easier (see example below). The docking system should not be fitted on a sloping surface if the wheelchair is to be backed in.

In some cases, it may be necessary to fit spacers to the vehicle floor in order to be able to lock the wheelchair securely, see 27.

The docking system must be anchored in a manner that is safe for the type of vehicle involved and which conforms to the relevant country's regulations.

The docking system must be anchored in such a way that other components are not damaged and the strength of the vehicle floor is not impaired.



*Fitting on a sloping surface*

**⚠ CAUTION!**

Check after installation that the docking system is not warped and that the docking system functions correctly.

The docking system must be tested with the user sitting in the wheelchair.

Check that the wheelchair shock absorbers are set for the right user weight – see the chassis service manual. Permobil recommends that solid tires are used for the wheelchair.

# Fitting

## Fitting Permolock C3

Read through the instructions before starting fitting.

1. Position the docking system in the right position in the vehicle.
2. Fit the docking system in the car using a screw, minimum quality M10 8.8, through the vehicle floor. The screw must go right through and have the required reinforcement washer and nut on the underside. At the rear of the docking system, fit the attached reinforcement plate on the inside of the docking system. See page 27.

**⚠ CAUTION!**

Screws are not supplied with Permolock C3. The recommended quality of the screws is M10 8.8, with length adapted according to the floor thickness of the vehicle.

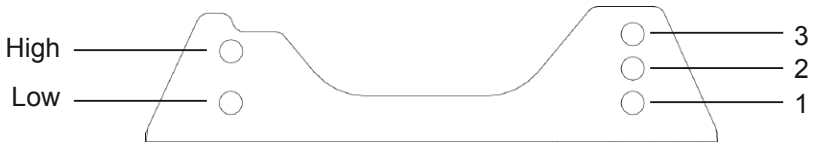
3. Connect the locking plate's cabling to the vehicle's electrical system. Connect the red cable to the fused +12V (10A).

| | | |
|---|---|---|
| **Red cable** | **-** | **12V (10A)** |
| **Black cable** | **-** | **Earth** |
| **Orange cable** | **-** | **Ignition** |

## Height adjustment of locking plate

The height of the locking plate can be adjusted to six different positions by fixing the central element to different holes in the bottom section of the docking system. The lowest part has two holes on one side (high – low) and three holes on the other side (1, 2 and 3).

If Permolock C3 is fitted to a level surface, it can be fixed in a level position with screws that go through the lock's middle and top sections. The hole to be used for locking varies for the different positions - see pages 25-27.

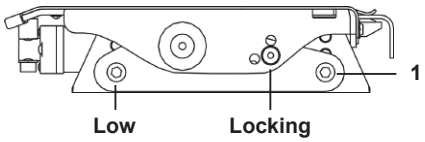



*Holes in the lowest part of the docking system.*

# Fitting

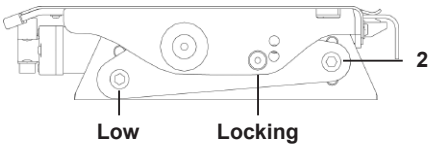
## Height adjustment of locking plate (cont.)

**Position 1**
(low – 1): Height 72 mm. If the wheelchair needs to be backed in, this position must be locked securely in a level position.



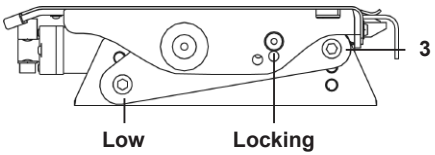

*Position 1.*

**Position 2**
(low – 2): Height 76.5 mm. If the wheelchair needs to be backed in, this position must be locked securely in a level position.



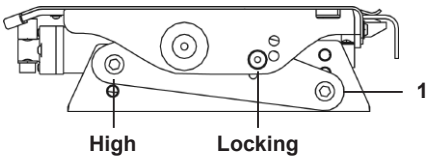

*Position 2.*

**Position 3**
(low – 3): Height 81.5 mm. Standard fitting for Permobil C300 on a level surface. If the wheelchair needs to be backed in, this position must be locked securely in a level position.



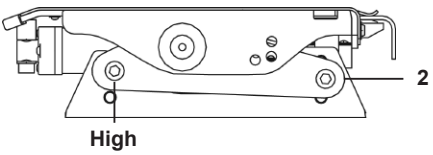

*Position 3.*

**Position 4**
(high – 1): Height 87 mm. Standard fitting for Permobil C350/M300/M400 on a level surface. If the wheelchair needs to be backed in, this position must be locked securely in a level position.




*Position 4.*

**Position 5**
(high – 2): Height 92 mm. Only used for fitting on a sloping surface. This position cannot be locked securely and may not be used if the wheelchair is to be backed into the docking system.

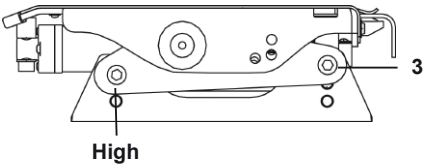



*Position 5.*

# Fitting

**Position 6**

(high – 3): Height 97 mm. Only used for fitting on a sloping surface. This position cannot be locked securely and may not be used if the wheelchair is to be backed into the docking system.



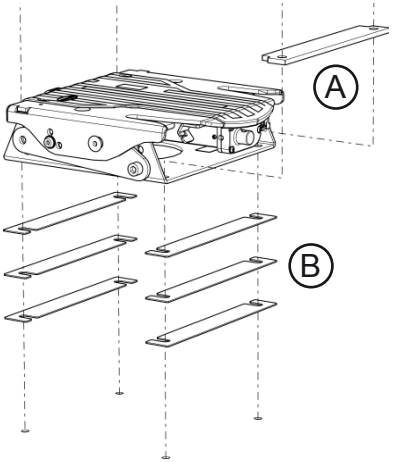

*Position 6.*

**Fine tuning of the height at assembly of the docking system**

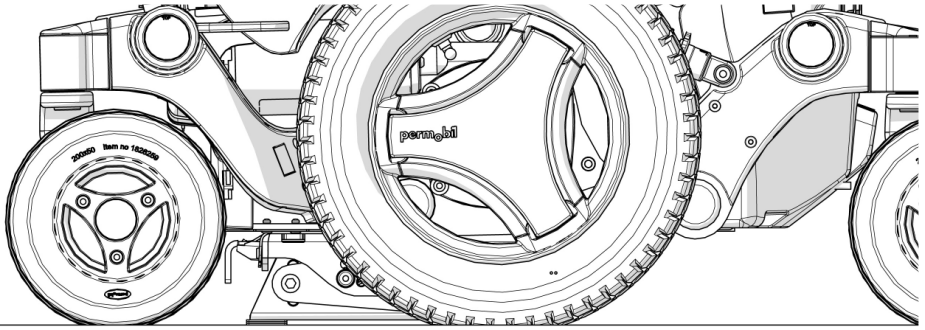
The height of the docking system can be fine tuned by fitting desired quantity of the attached spacers (B). See fig. to the right.

At the rear of the docking system, fit the attached reinforcement plate (A) on the inside of the docking system. See fig. to the right.

Fit the docking system parallell to the bottom of the wheelchairs chassis and with clearence just enough to make the chassis and the docking system not touch each other when the user is seated in the wheelchair. See fig. below.




*Fine tune the height with suitable number of spacers (B).*
*Fit the attached reinforcement plate (A) at the rear.*

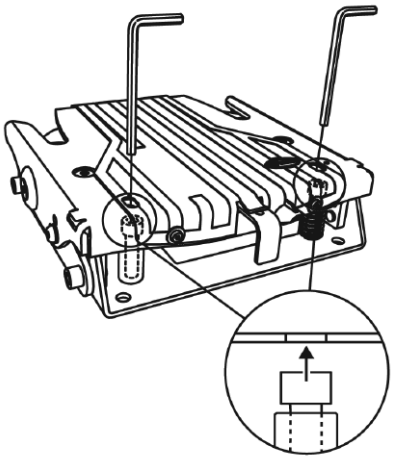


*Fit the docking system parallell to the bottom of the wheelchairs chassis and with clearence just enough to make the chassis and the docking system not touch each other when the user is seated in the wheelchair.*

## Setting adjustment screws

If the docking system is fitted to a sloping surface, the adjustment screws in the front of the docking system must be screwed to the highest possible position when the chair is in the docking position. This is so the top section of the docking system cannot spring forward.

1. Move the wheelchair into the docking system.
2. Note the position of the docking system's top section and move the wheelchair out of the docking system.
3. Unscrew the screws so they are level with the top section of the docking system (see picture) when the wheelchair is moved into the docking system again.
4. Move the wheelchair into the docking system and check that the screws are at the right level.

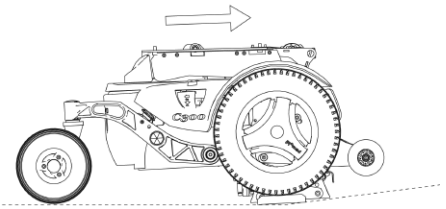


*Adjustment of screws.*

## Fitting floor spacers

When fitting the lock on a sloping surface, it may be necessary to use spacers under the wheelchair's wheels in order to make it easer to move the wheelchair in and out.

1. Secure the spacers to the vehicle floor using a screw of a suitable length depending on the thickness of the floor.



*Permolock C3 with spacers.*

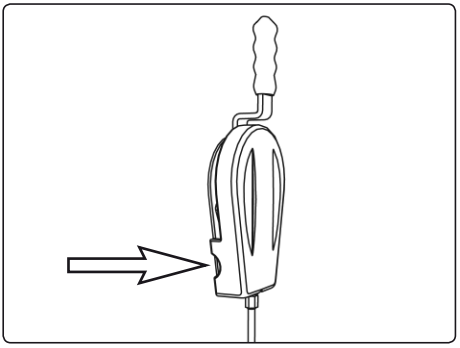
# Fitting

## Fitting of manual release lever in vehicle

Read through the instructions before starting fitting.

The manual release lever must be installed so that the user can easily operate it when necessary. The lever is intended for use where the vehicle's electrical system is not functioning optimally.

Remove the plastic cover from the lever by manually unclipping the sides of the cover at the bottom edge, see picture.



*The plastic cover can be unclipped by hand.*

### Preliminary adjustment

The release mechanism can be turned to suit installation on either the right or left side.

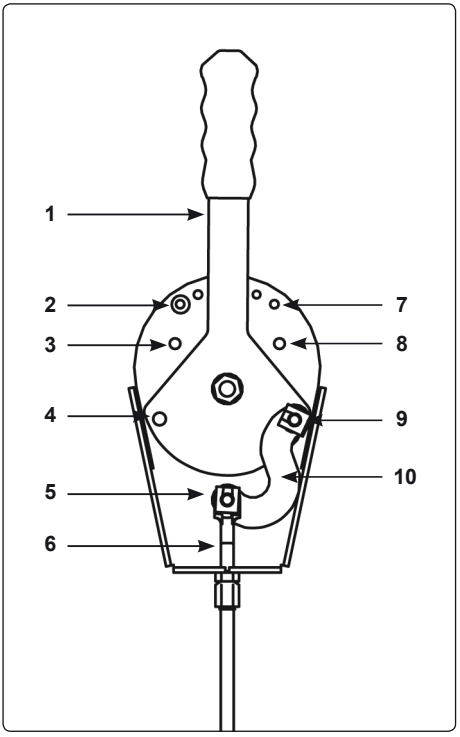
**⚠ WARNING!**

The handle must always be fitted so that the stop screw (2) is located in front of the release lever (1), see page 31. This prevents the release lever opening by itself in the event of a collision.

1. Move the stop screw between positions 2 and 7, see picture.
2. Remove the cable bracket (5) from the release arm (10) (see picture).
3. Turn the release arm (10) and move it between attachment points 4 and 9.
4. Refit the cable bracket (5) to the release arm (10) (see picture).

### Fitting

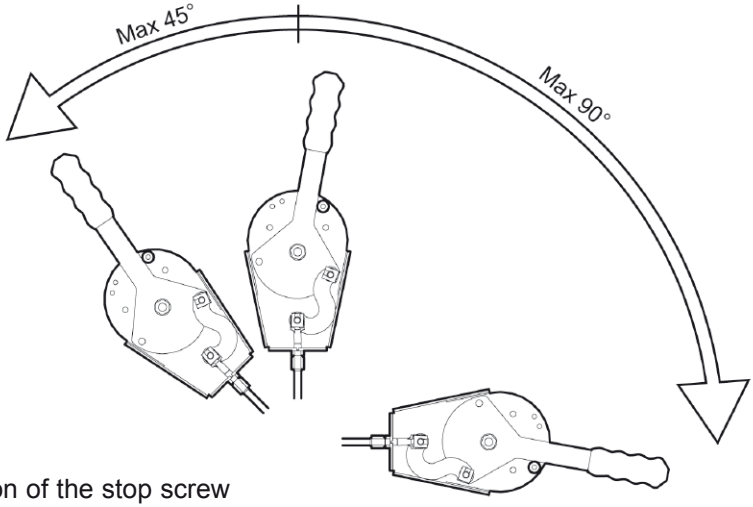
1. Install the release lever using three M4 screws with countersunk heads through holes 3, 6 and 8 (see picture).
2. Refit the plastic cover.



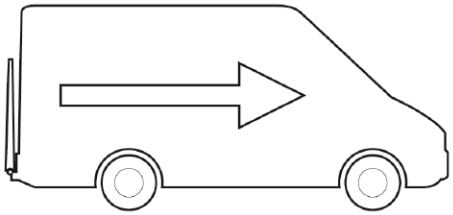

*Manual release lever.*

# Fitting

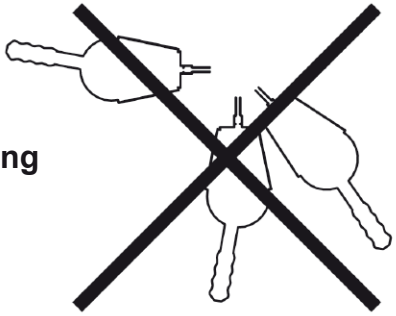
## Correct fitting




**O** = Position of the stop screw



## Prohibited fitting

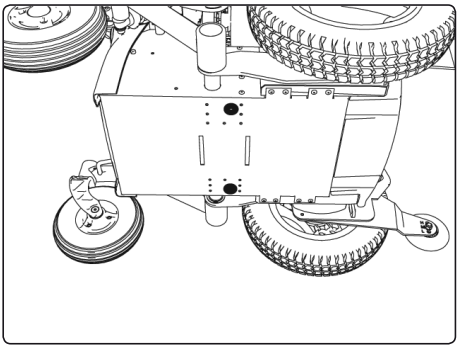


*Fitting the release lever*

# Fitting

## Identification of prepared chassis

In order to be able to fit reinforcement plates and pins in the wheelchair's chassis, the chassis must be prepared for this. A prepared chassis has two holes for the pins on the underside, see picture.

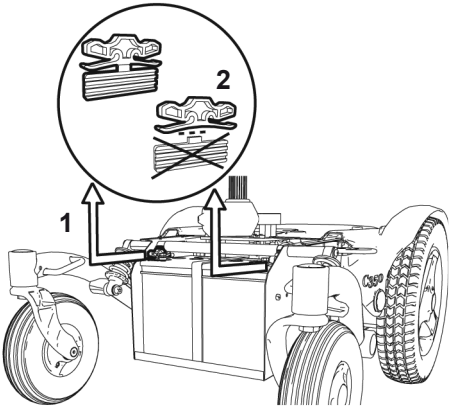


*Holes on the underside of prepared chassis.*

## Fitting reinforcement plates in the wheelchair's chassis (C350)

Read through the user manual before commencing fitting.

1. Remove the wheelchair's chassis cover. For a detailed description, see the chassis service manual.
2. Remove the two battery holders (1). Cut away the bottom sections by the narrowest part (2) if the battery holders are of this type.

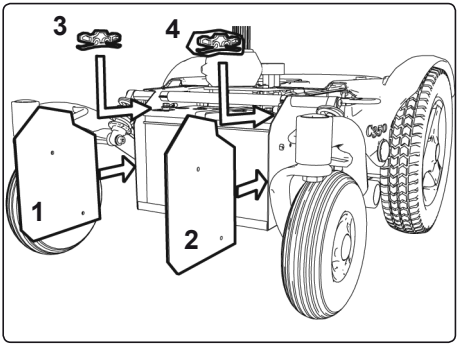



*Removal and adjustment of battery holder.*

**⚠ CAUTION!**

It is not necessary to remove the battery when fitting reinforcement plates, but it may make the work easier.

3. Position the reinforcement plates (1 and 2) in the grooves on both sides of the battery and push them firmly against the shaft (see picture).
4. Secure the reinforcement plates using the accompanying screws and washers.
5. Refit the battery holders (3 and 4), see picture.




*Fastening reinforcement plates and battery holder.*

# Fitting

## Fitting of pins in the wheelchair chassis

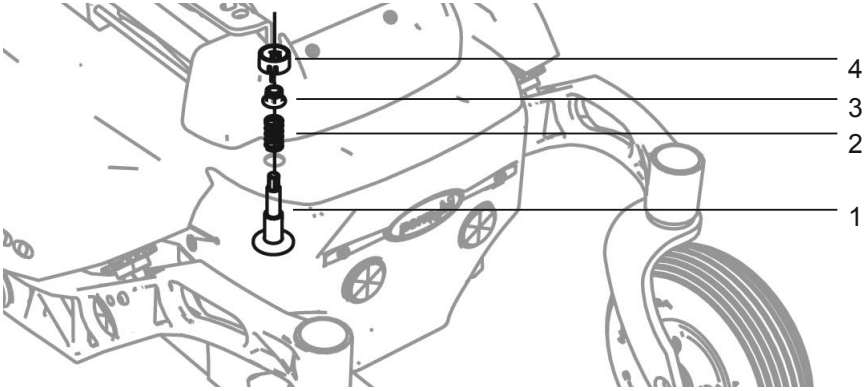
Read through the instructions before starting fitting.

1. Remove the wheelchair's chassis cover. For a detailed description, see the service manual for the chassis in question.
2. Lift/angle the wheelchair so that the underside of the chassis can be accessed.

**⚠ WARNING!**

The wheelchair is heavy, so ensure it remains stable after the chassis has been lifted/angled.

3. Lift out the cabling and electronics that are in the way.




*Fitting pins.*

4. Push in the pin (1) and spring (2) from the underside of the chassis (see picture).
5. Press the pin in and check that it springs back.
6. Press in the pin against the chassis underside and screw the lock nut securely (3) onto the pin's thread. There is a recess in the pin for an allen key. Check that the pin can be pressed in and that it returns to its outer position.
7. Press the cable protection (4) securely into the holes, if these are not factory fitted.
8. Put the wheelchair down on all four wheels again.
9. Refit the wheelchair's chassis cover.

# Fitting (K450)

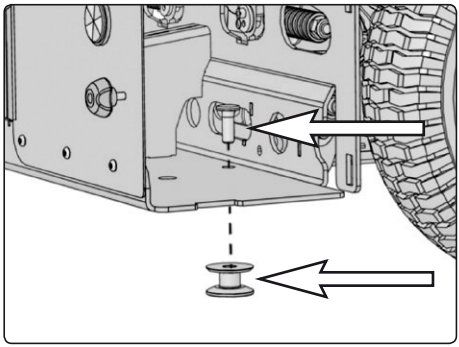
## Fitting pins to the wheelchair chassis

Read through these instructions before you commence fitting.

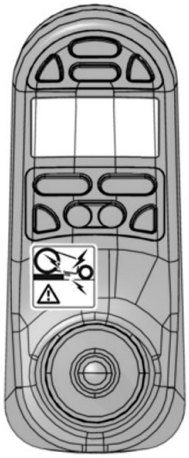
1. Remove the wheelchair's battery covers. For a detailed description, see the chassis service manual.
2. Use the battery belt to pull/lift the batteries from the chassis.
3. Apply Loctite 2701 to the threads of the accompanying screws.
4. Fit the locking pins to the wheelchair chassis. See picture. The screws holding the locking pins should be tightened from the underside of the chassis using a torque wrench. Hold on to the locking pins using pliers.
   **Tightening torque: 45 Nm.**
5. Replace the batteries and the plastic battery covers.
6. Fit the accompanying warning sticker to the control panel. See picture.

**⚠ WARNING!**

If locking pins are mounted, chassis clearance will be reduced to 40 mm.



*Fitting a locking pin.*



*Fit the accompanying warning sticker to the control panel.*

# Fitting (X850)

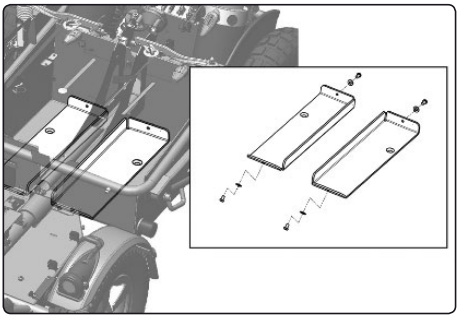
## Fitting pins to the wheelchair chassis

Read through these instructions before you commence fitting.

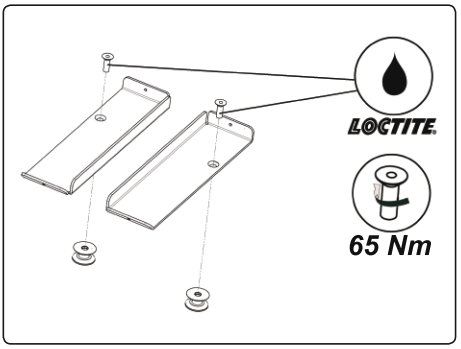
1. Remove the wheelchair's chassis cover and batteries. For a detailed description, see the chassis service manual.
2. Lower the reinforcement plates into the relevant battery compartment. Note that there is a right and left plate. Secure with a washer and screw from the outside of the chassis. See picture.
3. Drip Loctite onto the screws to be threaded into the pins under the chair. The screws are fitted from the battery compartment. Use a socket head bit for M10 screws and tighten from underneath the chassis using a torque wrench. Hold onto the pins from underneath the chassis using pliers, etc.
   **Tightening torque: 65 Nm.**
4. The accompanying warning sticker should be applied to the control panel. *Figure 3*.
5. The accompanying warning sticker should be applied to the control panel. Figure 3.

**⚠ WARNING!**

This product is only for use as a transport lock. Must NOT be used for personal transport. Incorrect use can lead to a risk of injury to the user or passenger, or damage to the wheelchair, Permolock C3 or vehicle.



*Reinforcement plates with associated screws and washers.*




*Drip Loctite onto the screws and tighten with a torque wrench to 65 Nm.*

*Sticker to be stuck to control panel.*

# Fitting (X850)

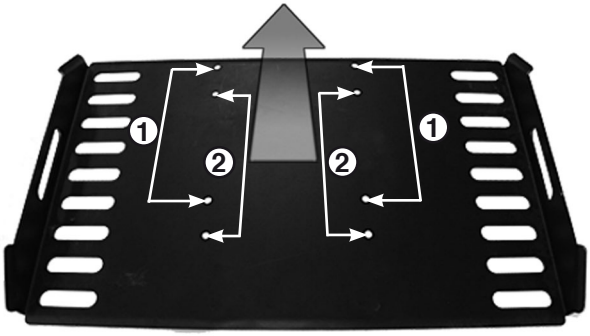
## Fitting a transport lock in the vehicle

Read through the instructions before you commence fitting.

**⚠ WARNING!**

This product is only for use as a transport lock. Must NOT be used for personal transport. Incorrect use can lead to a risk of injury to the user or passenger, or damage to the wheelchair, Permolock C3 or vehicle.

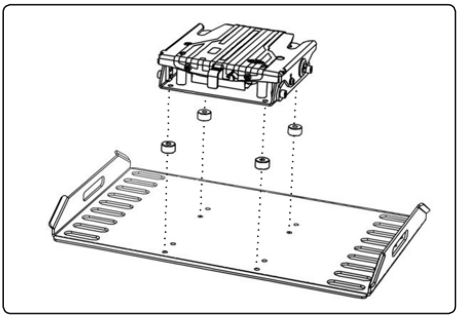
1. Place the plate as per *picture 1*, where the arrow symbolizes the direction of travel of the vehicle.
2. The transport bracket must be fitted in the front set of holes if the user intends to drive forwards into the bracket, *pos 1*. Use the rear set of holes if the chair is to be reversed into the bracket, *pos 2*.




*The fitting positions for the transport bracket.*

## Fitting (X850)

**3.** Secure the lock to the plate using a screw, minimum quality M10 8.8 (the screws are *NOT* included in the kit). The screw must go right through and have the required reinforcement washer and nut. The accompanying spacers must be used between the bracket and the floor plate.

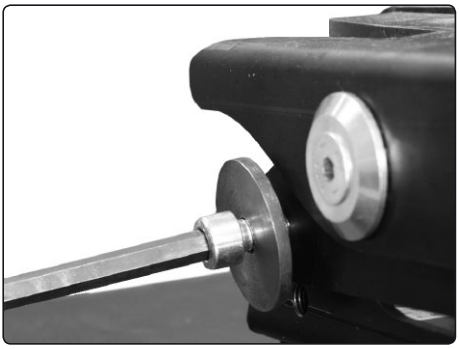


*Floor plate, spacers and transport lock.*

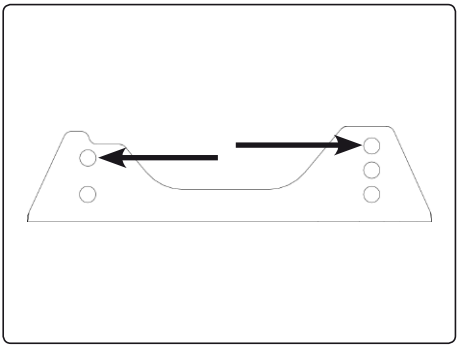
**4.** Replace the two screws that adjust the height of the bracket using the attached screws and washers. See picture. Secure in the bracket's top positions. The bracket's front screws do not need to be replaced. The screws should be tightened with 47 Nm torque.

**Tightening torque: 47 Nm.**

*Cont. on next page.*



*Drip Loctite onto the screws and tighten with a torque wrench to 65 Nm.*



*Secure the screws in the bracket's top positions.*

# Fitting (X850)

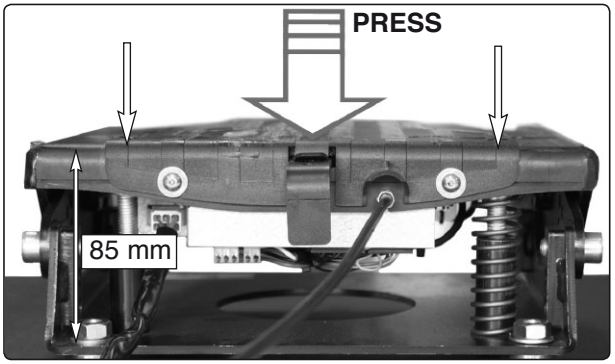
**5.** Adjust the height of the bracket by pressing down on the spring-lock side at the bottom. Turn the two adjustment screws until a height of 85 mm is reached. See picture.

**6.** Connect the cabling for the vehicle's electrical system. Connect the red cable to the fused +12V (10A).

**Red cable - 12V (10A)**

**Black cable - Earth**

**Orange cable - Ignition**




*Adjust the height to 85 mm.*

# Troubleshooting guide

The following troubleshooting guide describes a number of errors and events which could occur when using your Permolock C3, together with suggested remedies. Please note that this guide does not describe all the problems and incidents that may arise. You should always contact your service contact or Permobil in the event of uncertainty.

| EVENT | POSSIBLE CAUSE | ACTION |
|---|---|---|
| The light on the locking plate control button flashes red. | Electronics fault | Reset system by pressing the control button for 10 seconds. |
| | | Contact service |
| The light on the locking plate control button shines red during manual release. | The locking mechanism is not in the locked position. | Make sure the locking mechanism is in locked position and that the wheelchair is fully in or out of the docking system. |
| The docking system does not unlock when its control button is pressed. (The docking system can always be unlocked using the manual release handle). | Electronics fault | Reset system by pressing the control button for 10 seconds. |
| | | Contact service |
| The light on the locking plate control button flashes irregularly. | The tension spring is broken. | Contact service |
| | The locking mechanism's locking arm is loose. | Contact service |
| The wheelchair is not locked in position in Permolock C3. | The manual release lever is in open position. | Move the manual release lever to the closed position. |
| | The locking mechanism's adjustment device is broken. | Contact service |
| | The spring pins have got stuck in the chassis. | Contact service |
| The wheelchair does not fit into Permolock C3 when driven in over the docking system. | The height has been incorrectly adjusted on Permolock C3. | Adjust the height of Permolock C3, see pages 25-27. |

## *Volvo Cars Safety Centre test report*

Research, Development & Purchasing
Volvo Cars Safety Centre
Dept 91445 PV22
SE-405 31 Göteborg
Sweden
Phone +46 31 59 00 00
Telefax +46 31 59 59 22

**A sled test simulating a 48 km/h full frontal impact was performed on a sled platform. The purpose of the test was to investigate the performance of a tiedown docking system, Permolock C3, used together with a Permobil C300 wheelchair according to SAE J2249 JAN99. One uninstrumented HIII 50% dummy was positioned in the wheelchair.**

**The equipment fulfilled all applicable design and performance requirements according to SAE J2249 JAN99.**

Customer test number: **08-1376**
VCSC test number: **08009704**

Day of test
**2008-02-20**

Test Engineer
**Emma Nielsen +46 (0) 31 3256383**

Customer
**Torbjörn Renlund**
**Permobil AB**
**Box 120**
**S - 861 23 Timrå**
**Sweden**

Volvo Cars Safety Centre

VOLVO

**Volvo Cars Safety Centre**

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Volvo Cars Safety Centre
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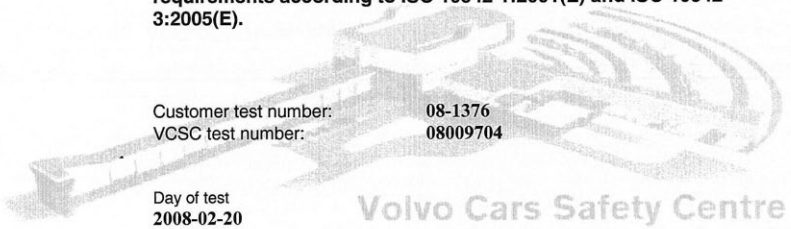
**A sled test simulating a 48 km/h full frontal impact was performed on a sled platform. The purpose of the test was to investigate the performance of a docking tiedown system, Permolock C3, used together with a Permobil C300 wheelchair according to ISO 10542-1:2001(E) and ISO 10542-3:2005(E). One uninstrumented HIII 50% dummy was positioned in the wheelchair.**

**The equipment fulfilled all applicable design and performance requirements according to ISO 10542-1:2001(E) and ISO 10542-3:2005(E).**



Customer test number: **08-1376**
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**2008-02-20**

Test Engineer
**Emma Nielsen +46 (0) 31 3256383**

Customer
**Torbjörn Renlund**
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VOLVO

**Volvo Cars Safety Centre**

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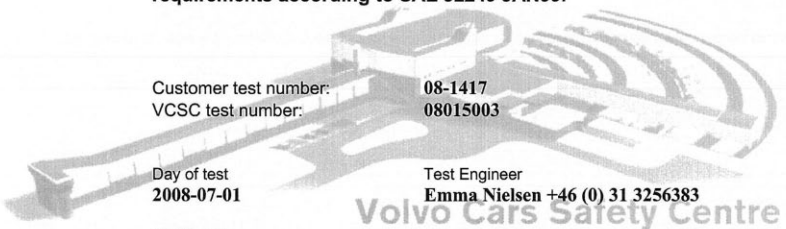
**Summary**
**A sled test simulating a 48 km/h full frontal impact was performed on a sled platform. The purpose of the test was to investigate the performance of a docking tiedown system, Permolock C3, used together with a Permobil C350 Corpus R-net wheelchair according to SAE J2249 JAN99. One uninstrumented HIII 50% dummy was positioned in the wheelchair.**

**The equipment fulfilled all applicable design and performance requirements according to SAE J2249 JAN99.**




Customer test number: **08-1417**
VCSC test number: **08015003**

Day of test
**2008-07-01**

Test Engineer
**Emma Nielsen +46 (0) 31 3256383**

Customer
**Marita Brundin**
**Permobil AB**
**Box 120**
**S - 861 23 Timrå**
**Sweden**

This report was issued
**2008-09-11**

Test performed by:

**Emma Nielsen**

Test approved by:

**Martin Segerström**

**VOLVO**

**Volvo Cars Safety Centre**

## *Volvo Cars Safety Centre test report*

Research, Development & Purchasing
Volvo Cars Safety Centre
Dept 91445 PV22
SE-405 31 Göteborg
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Telefax +46 31 59 59 22

**Summary**
**A sled test simulating a 48 km/h full frontal impact was performed on a sled platform. The purpose of the test was to investigate the performance of a docking tiedown system, Permolock C3, used together with a Permobil C350 Corpus R-net wheelchair according to ISO 10542-1:2001(E) and ISO 10542-3:2005(E). The wheelchair was reversed in to the docking device. One uninstrumented HIII 50% dummy was positioned in the wheelchair.**

**The equipment fulfilled all applicable design and performance requirements according to ISO 10542-1:2001(E) and ISO 10542-3:2005(E).**

Customer test number: **08-1417**
VCSC test number: **08015003**

Day of test
**2008-07-01**

Test Engineer
**Emma Nielsen +46 (0) 31 3256383**

Customer
**Marita Brundin**
**Permobil AB**
**Box 120**
**S - 861 23 Timrå**
**Sweden**

This report was issued
**2008-08-27**

Test performed by:
**Emma Nielsen**

Test approved by:
**Martin Segerström**

VOLVO

**Volvo Cars Safety Centre**

## *Volvo Cars Safety Centre test report*

Research, Development & Purchasing
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**Summary**
**A sled test simulating a 48 km/h full frontal impact was performed on a sled platform. The purpose of the test was to investigate the performance of a docking tiedown system, Permolock C3, used together with a Permobil C350 Corpus R-net wheelchair according to ISO 10542-1:2001(E) and ISO 10542-3:2005(E). The wheelchair was driven forward in to the docking device. One uninstrumented HIII 50% dummy was positioned in the wheelchair.**

**The equipment fulfilled all applicable design and performance requirements according to ISO 10542-1:2001(E) and ISO 10542-3:2005(E).**

Customer test number: **08-1418**
VCSC test number: **08015004**

Day of test
**2008-07-01**

Test Engineer
**Emma Nielsen +46 (0) 31 3256383**

Customer
**Marita Brundin**
**Permobil AB**
**Box 120**
**S - 861 23 Timrå**
**Sweden**

This report was issued
**2008-08-27**

Test performed by:
**Emma Nielsen**

Test approved by:
**Martin Segerström**

**VOLVO**

**Volvo Cars Safety Centre**

## *Volvo Cars Safety Centre test report*

Research, Development & Purchasing
Volvo Cars Safety Centre
Dept 91445 PV22
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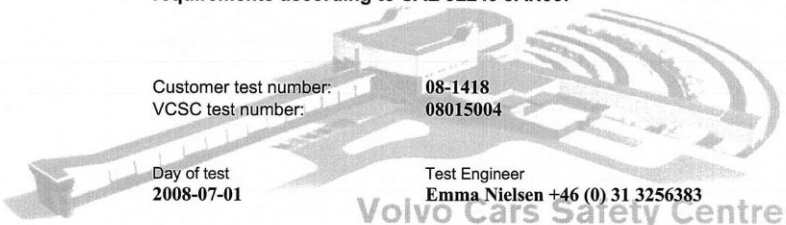
Telefax +46 31 59 59 22

**Summary**
**A sled test simulating a 48 km/h full frontal impact was performed on a sled platform. The purpose of the test was to investigate the performance of a docking tiedown system, Permolock C3, used together with a Permobil C350 Corpus R-net wheelchair according to SAE J2249 JAN99. One uninstrumented HIII 50% dummy was positioned in the wheelchair.**

**The equipment fulfilled all applicable design and performance requirements according to SAE J2249 JAN99.**




Customer test number: **08-1418**
VCSC test number: **08015004**

Day of test
**2008-07-01**

Test Engineer
**Emma Nielsen +46 (0) 31 3256383**

Customer
**Marita Brundin**
**Permobil AB**
**Box 120**
**S - 861 23 Timrå**
**Sweden**

This report was issued
**2008-09-11**

Test performed by:
**Emma Nielsen**

Test approved by:
**Martin Segerström**

**VOLVO**

**Volvo Cars Safety Centre**

## *Volvo Cars Safety Centre test report*

Product Development
Volvo Cars Safety Centre
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SE-405 31 Göteborg
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Phone +46 31 59 00 00
Telefax +46 31 59 59 22

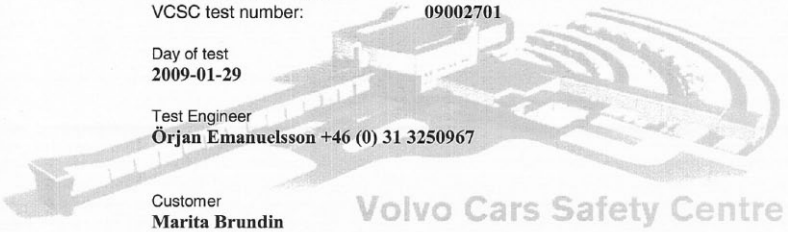
**Summary**
**A sled test simulating a 48 km/h full frontal impact was performed on a sled platform. The purpose of the test was to investigate the performance of a Permobil K450 MX R-Net, powered wheelchair, used together with a docking tie down system, Permolock C3, according to SAE J2249 JAN99. The wheelchair was driven forward in to the docking device.**
**An uninstrumented HIII 5% dummy was positioned in the wheelchair.**

**The equipment fulfilled all applicable design and performance requirements according to SAE J2249 JAN99.**

Customer test number: **09-1485**
VCSC test number: **09002701**

Day of test
**2009-01-29**

Test Engineer
**Örjan Emanuelsson +46 (0) 31 3250967**




Customer
**Marita Brundin**
**Permobil AB**
**Box 120**
**S - 861 23 Timrå**
**Sweden**

This report was issued
**2009-03-10**

Test performed by:
**Örjan Emanuelsson**

Test approved by:
**Christian Guse**

**VOLVO**

**Volvo Cars Safety Centre**

## *Volvo Cars Safety Centre test report*

Research, Development & Purchasing
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**Summary**

**A sled test simulating a 48 km/h full frontal impact was performed on a sled platform. The purpose of the test was to investigate the performance of a powered wheelchair, Permobil K450 MX R-Net, according to ISO 7176-19:2008(E). The wheelchair was secured with a strap type tiedown complying with ISO 10542-2 and SAE J2249. An uninstrumented HIII 50% dummy was positioned in the wheelchair.**

**The equipment fulfilled all applicable design and performance requirements according to ISO 7176-19:2008(E).**

Customer test number: **08-1435**
VCSC test number: **08017603**

Day of test
**2008-10-31**

Test Engineer
**Göran Hackman +46 (0) 31 3254990**

Customer
**Permobil AB**
**Marita Brundin**
**Box 120**
**S - 861 23 Timrå**
**Sweden**

This report was issued
**2008-12-04**

Test performed by: Test approved by:

**Göran Hackman** **Martin Segerström**

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Volvo Cars Safety Centre

# *Volvo Cars Safety Centre test report*

Research, Development & Purchasing
Volvo Cars Safety Centre
Dept 91445 PV22
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**Summary**

**A sled test simulating a 48 km/h full frontal impact was performed on a sled platform. The purpose of the test was to investigate the performance of a powered wheelchair, Permobil K450 MX R-Net, according to ISO 7176-19:2008(E). The wheelchair was secured with a strap type tiedown complying with ISO 10542-2 and SAE J2249. An uninstrumented HIII 50% dummy was positioned in the wheelchair.**

**The equipment fulfilled all applicable design and performance requirements according to ISO 7176-19:2008(E).**

Customer test number: **08-1435**
VCSC test number: **08017603**

Day of test
**2008-10-31**

Test Engineer
**Göran Hackman +46 (0) 31 3254990**

Customer
**Permobil AB**
**Marita Brundin**
**Box 120**
**S - 861 23 Timrå**
**Sweden**

This report was issued
**2008-12-04**

Test performed by:
**Göran Hackman**

Test approved by:
**Martin Segerström**

VOLVO

**Volvo Cars Safety Centre**

## *Volvo Cars Safety Centre test report*

Research & Development
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**Summary**
**A sled test simulating a 48 km/h full frontal impact was performed on a sled platform. The purpose of the test was to investigate the performance of a Permobil M300/M400 Corpus 3G powered wheelchair, according to ISO 7176-19:2001(E)**
**The wheelchair was secured with Permolock C3, a docking tiedown system complying with ISO 10542-1, -3 and SAEJ2249.**
**An uninstrumented HII 50% dummy was positioned in the wheelchair.**

**The equipment fulfilled all applicable design and performance requirements according to ISO 7176-19:2001(E).**

Customer test number: **11-1805**
VCSC test number: **11002205**

Day of test
**2011-01-26**

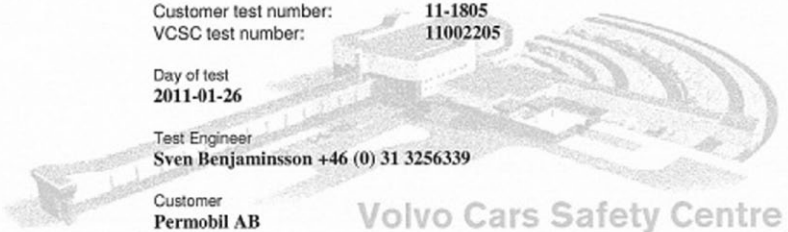
Test Engineer
**Sven Benjaminsson +46 (0) 31 3256339**

Customer
**Permobil AB**
**Lars Spjuth**
**Box 120**
**S - 861 23 Timrå**
**Sweden**

This report was issued
**2011-02-10**

Test performed by:
**Sven Benjamminsson**

Test approved by:
**Anders Djärv**




**VOLVO**

**Volvo Cars Safety Centre**

## *Volvo Cars Safety Centre test report*

Research & Development
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**Summary**
**A sled test simulating a 48 km/h full frontal impact was performed on a sled platform. The purpose of the test was to investigate the performance of a docking tiedown system, Permolock C3, used together with a Permobil M300/M400 Corpus 3G wheelchair according to SAE J2249 JUNE99. An uninstrumented HII 50% dummy was positioned in the wheelchair.**

**The equipment fulfilled all applicable design and performance requirements according to SAE J2249 JUNE99.**

Customer test number: **11-1805**
VCSC test number: 11002205

Day of test
**2011-01-26**

Test Engineer
**Sven Benjaminsson +46 (0) 31 3256339**

Volvo Cars Safety Centre

Customer
**Permobil AB**
**Lars Spjuth**
**Box 120**
**S - 861 23 Timrå**
**Sweden**

This report was issued
**2011-02-28**

Test performed by: Test approved by:

**Sven Benjamminsson** **Christian Guse**

**VOLVO**

**Volvo Cars Safety Centre**

## *Volvo Cars Safety Centre test report*

Product Development
Volvo Cars Safety Centre
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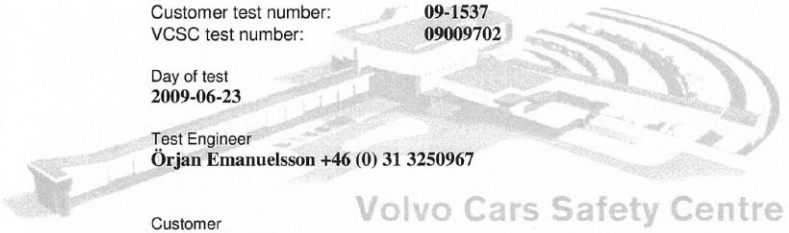
**Summary**
**A sled test simulating a 48 km/h full frontal impact was performed on a sled platform. The purpose of the test was to investigate the performance of a docking tie down system, Permolock C3 used together with a permobil X850 Corpus TP2 powered wheelchair, according to SAE J2249 JAN99. The wheelchair was driven forward in to the docking device.**
**An uninstrumented HIII 50% dummy was positioned in the wheelchair.**

**The equipment fulfilled all applicable design and performance requirements according to SAE J2249 JAN99.**

Customer test number: **09-1537**
VCSC test number: **09009702**

Day of test
**2009-06-23**

Test Engineer
**Örjan Emanuelsson +46 (0) 31 3250967**




Customer
**Marita Brundin**
**Permobil AB**
**Box 120**
**S - 861 23 Timrå**
**Sweden**

This report was issued
**2009-07-02**

Test performed by:
**Örjan Emanuelsson**

Test approved by:
**Christian Guse**

**VOLVO**

**Volvo Cars Safety Centre**

## *Volvo Cars Safety Centre test report*

Product Development
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**Summary**
**A sled test simulating a 48 km/h full frontal impact was performed on a sled platform. The purpose of the test was to investigate the performance of a docking tiedown system, Permolock C3, used together with a Permobil X850 Corpus TP2 wheelchair according to ISO 10542-1:2001(E) and ISO 10542-3:2005(E). The wheelchair was driven forward in to the docking device. One uninstrumented HIII 50% dummy was positioned in the wheelchair.**

**The equipment fulfilled all applicable design and performance requirements according to ISO 10542-1:2001(E) and ISO 10542-3:2005(E).**

Customer test number: **09-1537**
VCSC test number: **09009702**

Day of test
**2009-06-23**

Test Engineer
**Örjan Emanuelsson +46 (0) 31 3250967**

Volvo Cars Safety Centre

Customer
**Marita Brundin**
**Permobil AB**
**Box 120**
**S - 861 23 Timrå**
**Sweden**

This report was issued
**2009-07-03**

Test performed by:
**Örjan Emanuelsson**

Test approved by:
**Christian Guse**

VOLVO

Volvo Cars Safety Centre

US

# *Permolock C3*

Art. no.: 205237-US-0